

**Serial No. 09/135,183**

**Filed: August 17, 1998**

Cl  
contd

- i) a self-assembled monolayer; and
- ii) a capture probe;
- b) a target sequence comprising a first portion that is capable of hybridizing to said capture probe, and a second portion that does not hybridize to said capture probe and comprises at least one covalently attached electron transfer moiety (ETM).

24. *New* A composition comprising:

- a) an electrode comprising:
  - i) a self-assembled monolayer; and
  - ii) a capture probe;
- b) a label probe comprising a first portion that is capable of hybridizing to a component of an assay complex, and a second portion comprising a recruitment linker that does not hybridize to a component of assay complex and comprises at least one covalently attached electron transfer moiety (ETM).

25. *New* A method of detecting a target nucleic acid sequence in a test sample comprising:

- a) forming a hybridization complex including said target sequence and a capture probe; wherein said capture probe is on an electrode comprising a self-assembled monolayer;
- b) directly or indirectly attaching at least one label probe to said target sequence to form an assay complex, wherein said label probe comprises a first portion capable of hybridizing to a component of said assay complex, and a second portion comprising a recruitment linker that does not hybridize to a component of said assay complex and comprises at least one covalently attached electron transfer moiety (ETM); and

*C1*  
*cond*  
c) detecting the presence of said ETM using said electrode.

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Please enter the following amended claims:

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- C2*
3. (Amended) A composition according to claims 1, 2, 23, or 24 wherein said ETM is ferrocene.
  4. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said label probe comprises a plurality of ETMs.
  5. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said first portion of said label probe further comprises a covalently attached ETM.
  6. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said assay complex comprises an amplifier probe.
  7. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said assay complex comprises a capture extender probe.
  8. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said monolayer further comprises insulators.
  9. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said capture probe is attached to said electrode via a conductive oligomer.

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C2M  
cond  
10. (Amended) A composition according to claim 1, 2, 23, or 24 wherein said capture probe is attached to said electrode via an insulator.

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C3  
12. (Amended) A method according to claim 11 or 25 wherein said label probe comprises a plurality of ETMs.

13. (Amended) A method according to claim 11 or 25 wherein said target sequence is attached to said electrode by hybridization to a capture probe.

14. (Amended) A method according to claim 11 or 25 wherein said target sequence is attached to said electrode by hybridizing a first portion of said target sequence to a first capture extender probe, and hybridizing a second portion of said first capture extender probe to a capture probe on the electrode.

15. (Amended) A method according to claim 11 or 25 wherein said target sequence is attached to said electrode by

- a) hybridizing a first portion of said target sequence to a first portion of a first capture extender probe;
- b) hybridizing a second portion of said first capture extender probe to a first portion of an capture probe on the electrode;
- c) hybridizing a second portion of said target sequence to a first portion of a second capture extender probe; and
- d) hybridizing a second portion of said second capture extender probe to a second portion of said capture probe.

CA  
conclg

16. (Amended) A method according to claim 11 or 25 wherein said label probe is attached to said target sequence by hybridizing said first portion of said label probe to a first portion of said target sequence.

17. (Amended) A method according to claim 11 or 25 wherein said label probe is attached to said target sequence by

- a) hybridizing a first portion of an amplifier probe to a first portion of said target sequence; and
- b) hybridizing at least one amplication sequence of said amplifier probe to said first portion of at least one label probe.

18. (Amended) A method according to claim 11 or 25 wherein said label probe is attached to said target sequence by

- a) hybridizing a first portion of a first label extender probe to a first portion of a target sequence;
- b) hybridizing a second portion of said first label extender probe to a first portion of an amplifier probe;
- c) hybridizing at least one amplication sequence of said amplifier probe to said first portion of at least one label probe.

19. (Amended) A method according to claim 11 or 25 wherein said label probe is attached to said target sequence by